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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/035,154	01/04/2002	Makoto Nokita	03560.002974	1768

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EXAMINER	
HO, ALLEN C	

ART UNIT	PAPER NUMBER
2882	

DATE MAILED: 12/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/035,154	NOKITA, MAKOTO	
	Examiner	Art Unit	
	Allen C. Ho	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 November 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,12-14,22,25,27,28 and 33-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,12-14,22,25,27,28 and 33-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Objections

1. Claim 1 is objected to because of the following informalities: Line 4, "a radiation" should be replaced by --an x-ray--. Appropriate correction is required.

2. Claim 12 is objected to because of the following informalities: Line 9, "a radiation" should be replaced by --an x-ray--. Appropriate correction is required.

3. Claim 14 is objected to because of the following informalities: Line 3, "a radiation" should be replaced by --an x-ray--. Appropriate correction is required.

4. Claim 22 is objected to because of the following informalities: Line 2, "radiation" should be replaced by --x-ray--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 2, 13, and 34 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for detecting x-rays, does not reasonably provide enablement for detecting all forms of radiations. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

As understood by persons skilled in the art, radiations comprise a broad spectrum of electromagnetic and particle fields. The only kind of radiation generated and detected by the apparatus disclosed by the applicants is x-ray. The applicant failed to describe generating and detecting other forms of radiations such as alpha particles or infrared.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1, 2, 25, 27, 28, 34, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee *et al.* (U. S. Patent No. 6,181,773 B1) in view of Toth (U. S. Patent No. 5,379,333).

With regard to claim 1, Lee *et al.* disclosed an apparatus for radiographing an object, comprising: an x-ray radiation unit (**110**) for radiating x-rays; a grid (**42**, **58**, **140**) arranged in an x-ray path; an imaging controller (**170**) for changing a movement speed of the grid by changing a turn speed of a motor (**46**) and for controlling the radiation exposure time of the x-ray radiation unit; and a link mechanism (**50**) for changing turn movement of the motor into straight movement of the grid.

However, although Lee *et al.* taught using a single imaging controller for controlling the x-ray radiation unit and the motor, Lee *et al.* failed to teach that the apparatus comprises a

dedicated grid movement controller for controlling the motor, and the image controller controls the grid movement controller.

Toth disclosed an apparatus comprising an imaging controller (**26**) that controls dedicated motor controllers (**34**, **23**) for controlling motors.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a dedicated grid movement controller apart from the image controller, since a person would be motivated to increase the processing power of the image controller by delegating certain autonomous functions to dedicated controllers.

With regard to claims 2 and 34, Lee *et al.* in combination with Toth disclosed the apparatus according to claim 1, further comprising an x-ray sensor unit (**162**) for detecting an x-ray image. The imaging controller controls the x-ray radiation unit and the grid movement controller so that the grid will reach a predetermined speed at the time imaging begins (column 5, lines 65-67; column 6, lines 1-4).

However, Lee *et al.* failed to teach that the image controller controls the driving of the x-ray sensor unit so that the grid will reach a predetermined speed at the time the x-ray sensor unit starts driving.

Toth disclosed an apparatus comprising an imaging controller (**26**) that controls the driving of an x-ray sensor unit (**16**).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to employ the imaging controller for driving the x-ray sensor unit, since a person would be motivated to automate data acquisition from an electronic x-ray sensor unit. Furthermore, it would have been obvious to a person of ordinary skill in the art at the time the

invention was made to synchronize the driving of the x-ray sensor unit with the x-ray radiation unit and the grid movement, since a person would be motivated to acquire an image when the grid has reach a predetermined speed.

With regard to claim 35, Lee *et al.* in combination with Toth disclosed the apparatus according to claim 1.

However, Lee *et al.* failed to teach that the apparatus further comprises a display unit.

Toth disclosed an apparatus comprising a display unit (**32**) for displaying an image or other data from the imaging controller.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a display unit, since a person would be motivated to look at an image and/or monitor feedbacks from the apparatus.

With regard to claims 25 and 27, the functional limitation or intended use set forth in the claims fails to distinguish from the prior art in terms of structure. See MPEP § 2114. Accordingly, claims 25 and 27 are rejected.

With regard to claim 28, Lee *et al.* in combination with Toth disclosed the apparatus according to claim 35.

However, Lee *et al.* failed to teach that the apparatus further comprises a modifying unit.

Toth disclosed an apparatus comprising a modifying unit (**30**).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a modifying unit, since a person would be motivated to modify the parameters of imaging as required.

9. Claims 12-14 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee *et al.* (U. S. Patent No. 6,181,773 B1) in view of Daniels *et al.* (U. S. Patent No. 4,160,906).

With regard to claim 12, Lee *et al.* disclosed a method for radiographing an object, comprising the steps of: radiating x-ray (**110**); controlling (**170**) a movement of a grid (**42**, **58**, **140**), with a movement of the grid being changed by changing a turning speed of a motor (**46**); wherein a link mechanism (**50**) is used to change turn movement of the motor into straight movement of the grid; and determining the turn speed of the motor in the controlling step (This is inherent, since one must convert the linear speed into turn speed to drive the motor.).

However, Lee *et al.* failed to teach the steps of: inputting method information relating to a radiographic method; determining an x-ray exposure time in the radiating step, based on the method information input in the inputting step.

Daniels *et al.* disclosed a method for radiographing an object, comprising the steps of: inputting (**11**) method information relating to a radiographic method; determining an x-ray exposure time (**13**) in the radiating step, based on the method information input in the inputting step.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to input method information and determine an exposure time, since a person would be motivated to use an exposure time that is appropriate and safe for a specific radiographic method.

With regard to claim 13, Lee *et al.* in combination with Daniels *et al.* disclosed the method according to claim 12, further comprising a step of detecting (**162**) an x-ray image of the object.

With regard to claim 14, Lee *et al.* in combination with Daniels *et al.* disclosed the method according to claim 12, wherein the method information includes information relating to at least one of a section of the object (**16**) to be radiographed and an x-ray exposure time.

With regard to claim 33, Lee *et al.* and Daniels *et al.* disclosed the method according to claim 12.

However, Lee *et al.* and Daniels *et al.* failed to teach that the method is stored on a computer-readable storage medium as a executable program.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to store the method on a computer-readable storage medium as a executable program, since the imaging controller is a computer (column 5, line 67) and a person would be motivated to update or modify the method as required.

10. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee *et al.* (U. S. Patent No. 6,181,773 B1) and Daniels *et al.* (U. S. Patent No. 4,160,906) as applied to claim 12 above, and further in view of Ammann *et al.* (U. S. Patent No. 4,803,716).

With regard to claim 22, Lee *et al.* in combination with Daniels *et al.* disclosed the method according to claim 12.

However, Lee *et al.* and Daniels *et al.* failed to teach that the method further comprising a step of measuring or acquiring information relating to an actual radiation exposure time, wherein the turn speed to be determined in the determining step is modified based on the information measured or acquired in the measuring or acquiring step.

Ammann *et al.* disclosed a radiographic method that comprises a step for measuring or acquiring information relating to an actual radiation exposure time (column 1, lines 54-55).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to measure or acquire information relating to an actual radiation exposure time, since a person would be motivated to set up a feedback circuit to calibrate the exposure time and the movement parameter to ensure the patient would not be exposed to prolonged radiation exposure.

Response to Arguments

11. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

(1) Inoue (U. S. Patent No. 6,167,115) disclosed a grid comprising a link mechanism.

(2) Pagano (U. S. Patent No. 6,088,427) disclosed a link mechanism for use with a grid.

(3) Schmitt (U. S. Patent No. 5,559,851) disclosed a scattered radiation grid with a link mechanism.

(4) Johnson *et al.* (U. S. Patent No. 5,305,369) disclosed a bucky drive system.

(5) Takahata (U. S. Patent No. 4,731,806) disclosed a grid moving apparatus for radiography.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen C. Ho whose telephone number is (703) 308-6189. The examiner can normally be reached on Monday - Friday from 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward J. Glick can be reached at (703) 308-4858. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9318.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0530.

Allen C. Ho

Allen C. Ho
Patent Examiner
Art Unit 2882

ACH